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**The Persuasive Effects of Entertainment-Education Programming in
Nonfictional Television and Its Impact on the Efficacy of Breast Cancer
Screening Messages**

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A thesis submitted to
The Eberly College of Arts and Sciences
at West Virginia University

In partial fulfillment of the requirements for the degree of

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nonfictional television

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Abstract

The Influential Effects of Entertainment-Education Programming in Nonfictional Television and its Impact on the Efficacy of Breast Cancer Screening Messages

Jennifer Knight

This study has taken a preliminary step toward determining whether education-entertainment messages have the same persuasive effects in a nonfictional talk show format as they traditionally do in a fictional narrative format. To test the various hypotheses which propose that persuasive effects of entertainment-education can occur in a non-fictional format, data was collected from 82 female students across two large lecture classes. Results of two independent samples *t*-tests did not support hypothesis one and two, as participants' self-efficacy and attitudes toward breast cancer screening were not significantly different as a result of which media clip was viewed. Hypothesis three and four however, were supported in that those who viewed the narrative news story did experience greater feelings of transportation and narrative engagement than those who viewed the PSA. Three post hoc analyses were conducted in order to see if participants behavior in seeking more information concerning getting a mammogram was related to which video they were exposed to, their level of engagement, or their level of transportation. Results of the first Chi-Square analysis failed to provide evidence of any association between the video a participant was exposed to and if they followed the hyperlink. The last two analyses did reveal that even though there was no difference in clicking the link based on which video was viewed, there was a difference in clicking the link based on participants' levels of narrative engagement and transportation. This leads to the possibility that the relationship between the videos and clicking behavior could be mediated by engagement and/or transportation. Findings and implications are discussed.

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Introduction

Research into the persuasive effects of entertainment-education on changing people's attitudes and behaviors has increasingly gained attention in recent years. Prosocial messages embedded in popular programming have promoted healthy behaviors and social responsibility both inside and outside of the United States since 1988 (Kennedy, O'Leary, Beck, Pollard, & Simpson, 2004; Singhal, Cody, Rogers & Sabido, 2003; Winsten, 2000). In fact there is some evidence that entertainment-education is a more impactful way of changing attitudes and behaviors than overtly persuasive messages such as those found in public service announcements (PSA's) (Beck, 2004). The fictional narrative format has been identified as one of the most important features that produces this result, but the effectiveness of other narratives features remains unknown. Specifically, the effect of nonfictional narratives is still somewhat unclear (Moyer-Gusé, 2008). While several persuasion theories, such as Social Cognitive Theory (SCT) and the Extended Elaboration Likelihood Model (E-ELM) would argue for the effectiveness of this type of messaging in the entertainment-education context, supporting empirical evidence is still lacking. The following proposal forwards an investigation to determine if nonfictional television programming, specifically daytime talk shows, contain the same important qualities as fictional programming that have been shown to lead to viewer persuasion. The findings of this study would expand upon the existing research into narratives and entertainment-education utilizing the frameworks of the extended elaboration likelihood model and social cognitive theory.

Beyond this, the proposed study would also benefit research into health communication messages. Narrative methods of communication such as entertainment-education are well suited to disseminate cancer prevention messages because they aid in information processing, provide

social connections to those affected by the disease, and address emotional issues that arise during the entire process of detection and treatment (Kreuter, Green, Cappella, Slater, Wise, Storey, Clark, O'Keefe, Erwin, Holmes, Hinyard, Houston, & Woolley, 2007). Some people are dissuaded from seeking out screening due to their own self-doubts of being able to go through with it, even while knowing the test could save their lives. Narratives combat doubts by providing a compelling story that motivates and changes attitudes more so than simply stating statistical information (Slater & Rouner, 2002). Though the use of narratives in cancer communication is becoming more widespread by expanding into personal narratives, a lot is left to learn about the best circumstances that make the message effective. By studying cancer communication in the context of nonfictional media, this study seeks to uncover some of the unknowns surrounding both entertainment-education and cancer communication.

Literature Review

Entertainment and Learning

Much of the research into the relationship between entertainment and learning comes from work in the realms of entertainment-education, the extended elaboration likelihood model, and social cognitive theory (Vorderer, Klimmt, & Ritterfeld, 2004). These models are important to consider as they all have an impact on explaining the adoption messages in entertainment-education media. Because the information in talk shows is conveyed in an entertaining format, the audience may be presented with a unique opportunity to be influenced by it in a similar way as fictional entertainment-education. This proposition will be further explored through a review of literature, as well as the potential impact on cancer screening messages.

Entertainment-education is traditionally defined as a way of incorporating prosocial messages, designed to influence audience behavior, into the narration of popular fictional

television dramas, cartoons, soap operas, or movies (Moyer-Gusé, 2008). Because of its effects, it has become a widely used strategy in the realm of health communication, especially outside of the United States. Entertainment-education messages have the power to potentially increase the viewers' knowledge and awareness surrounding a topic, change normative attitudes, and subsequently alters behavior (Singhal et al, 2000). It can be argued that nonfictional daytime talk shows such as *The Dr. Oz Show*, *The Chew*, *The Ellen DeGeneres Show*, and *Today with Kathie Lee and Hoda* set out to do just that. Hosts of these shows typically attempt to draw audience attention to specific social issues including health concerns. The question still remains as to whether these shows have the same effects as traditional entertainment-education programming.

As research into traditional entertainment-education has indicated, its influential power comes from the way it distributes messages by subtly embedding the persuasive content into the narrative (Brown & Walsh-Childers, 2002; Beck, 2004). This method is engaging because humans are used to interacting and learning about the world through story-telling, and it has become a familiar way of exchanging information (Kreuter et al., 2007). Instead of presenting and defending arguments on why the audience should or should not do something, which is a typical feature of public service announcements, narratives utilize a plot and characters that can convey the same message.

Research shows that prosocial messages within entertainment programs can influence the attitudes and beliefs of the audience. The first successful example of this was the Harvard Alcohol Project's National Designated Driver Campaign that went from 1988 through 1992. The project teamed up with Hollywood prime-time producers to embed safe drinking messages in television programming (Winsten, 2000). The campaign's theme was eventually integrated into over 160 popular shows such as *The Cosby Show* and *Cheers*. By the end of the campaign in

1990, about 97% of adults ages 18-24 had knowledge of the designated driver concept and by the next year the term “designated driver” was added to the dictionary (Winsten, 2000).

Since the widespread success of that campaign, many other issues have been tackled through entertainment-education. Moyer-Gusé (2008) demonstrated that dramatic television has been shown to change attitudes toward HIV prevention, condom use, vaccinations, and cancer screening as well as increase awareness toward domestic violence, bullying, and other prominent social issues. In one instance, the television show *Friends*, was examined because it contained plot elements that conveyed prosocial sex-messages (Collins, Elliott, Berry, Kanouse, & Hunter, 2003). The example of *Friends* contradicts the commonly held belief in our society that exposure to popular media leads to negative sexual behaviors in adolescents (Pardun, L’Engle, & Brown, 2005). Collins et al (2003) found that the condom efficacy message presented in the hit comedy had a positive impact on adolescent’s sexual learning and knowledge, especially when combined with parental discussion.

While the effects of education-entertainment alone may be powerful, when combined with PSAs the effect is amplified. This is because having a hotline for viewers to access after the show serves as a call-to-action enticing them to learn more and take a step toward doing something (Kennedy et al., 2004). After an episode of *The Young and the Restless*, a PSA containing the National Cancer Institute’s toll-free hotline was displayed on screen after one of the main characters was diagnosed with breast cancer. Once data was collected on the viewers who used the hotline, it was found that compared to the normal inquiries the hotline received daily, those calling because of the PSA were more likely to be interested in cancer screening and prevention as opposed to other topics (Beck, 2004).

Another distinctive aspect of entertainment-education is how the narrative allows the audience to become absorbed into the story line (Green & Brock, 2000; Kreuter et al., 2007). This is a form of narrative involvement which is commonly defined as transportation. Specifically, transportation is a process where all mental capacities are focused on the unfolding storyline. During transportation the viewer feels swept up into the events of the narrative, and any persuasion is hidden from the viewer. This can help overcome a lot of resistance to a persuasive message because the viewer loses awareness that the message is trying to produce a change their attitudes (Moyer-Gusé, 2008). According to Green and Brock (2000), the viewer has to experience a few changes before one is completely transported. First, the viewer's cognitive resources are focused entirely on the environment within the story. That means that during this step, the viewer loses awareness of one's real-world surroundings. Next, the viewer's emotions are intensified. This is because the viewer is so engrossed in the narrative to the extent that it feels like one is experiencing the event in real life. Finally when the viewer comes out of the transported state, one has undergone some change as a result of being immersed in the story. Transported viewers are also more apt to regard the story as being like a real experience; therefore the lessons may have a greater impact (Green & Brock, 2000).

Within the narrative, the audience's interaction and involvement with characters has a large outcome on persuasion. Identification, wishful identification, similarity, liking, and parasocial interaction are all concepts contained within the broader category of viewer and character interaction (Eyal & Rubin, 2003). Identification with characters is a cognitive and emotional process in which the viewer imagines himself or herself as being a character. During this process, the viewer replaces his or her own identity as a viewer with the identity of the character which goes beyond simple transportation into the story line. Cohen (2001) states that

one of the most important factors for identification is that the viewer takes on the characters' goals and experiences positive and negative emotions in relation to the achievement of those goals. The relationship between transportation and identification is ambiguous in some respects. The haziness between the two concepts arises when character identification is defined as the viewer experiencing things from the character's point of view in the mediated world. The main difference is that transportation relates to the entire narrative while identification relates to engagement with a character (Murphy, Frank, Moran & Patnoe-Woodley, 2011).

Wishful identification is when the viewer wants to be like the character in the media and wants to share the same experiences. Bandura (1986) investigated this idea through social cognitive theory under the premise that viewers imitate attractive models. Wishful identification differs from identification in that it is the viewer's desire to be more like the character in real life, whereas identification is a process of mentally becoming the character while viewing the media (Moyer-Gusé, 2008).

Similarity, on the other hand, is the extent to which the viewer sees oneself as similar to the character. A viewer can be similar to the character in many ways such as demographics, personality, or physical features (Hoffner & Cantor, 1991). The viewer assesses similarity by seeing what one has in common with the character. Similarity, though often thought of as a necessity for identification, is in fact a separate construct (Eyal & Rubin, 2003). With similarity, the viewer preserves one's own perspective and makes a calculation of what he or she has in common with the character, in comparison to identification, which is a cognitive loss of self (Cohen, 2001). Liking is the simplest form interacting with a character and it refers to the viewer holding positive feelings toward a character. Typical scales measure liking by asking questions such as if the viewer feels one would be friends with the character. Liking is a base that helps

researchers understand how viewers relate to characters and form parasocial relationships (Moyer-Gusé, 2008).

Parasocial interaction (PSI) is the next way in which a viewer can interact with a character. It is defined by the relationship that forms between the audience member and figure of the media. In this relationship, the audience member retains his or her own identity. These relationships operate in ways similar to interpersonal relationships however there is no reciprocation on the part of the media figure (Giles, 2002). Horton and Wohl (1956) began PSI research in the realm media and identified two essential facets of PSI. These are companionship and personal identity. Characters not only have the potential to remind viewers of people they know but also help viewers to understand situations in their own lives. Giles (2002) demonstrated that audiences judge individuals in the media using comparable standards to people they encounter in their own lives. This is a reasonable finding considering that characteristics of PSI can satisfy social needs. This satisfaction is yet another factor of entertainment-education narratives that would explain why they have more persuasive power than PSA's.

Theoretical Background

When viewers are aware that they are the target of a persuasive attempt, research has shown that the viewers' resistance to the message increases (Moyer-Gusé, 2008). Because of the way that entertainment-education conceals persuasion, it does not prompt the kind of resistance that a viewer would have toward an overly persuasive message. Therefore, it is more likely to lead to changes in the viewer's behavior.

A number of frameworks have been suggested to explain the phenomena in which persuasive content embedded in a narrative accelerates behavioral and attitudinal changes (Zhao, 2014). These include most of the narrative constructs described in the previous section.

However, the most complete theoretical frameworks to describe the phenomena are the extended elaboration likelihood model, social cognitive theory, and the entertainment overcoming-resistance model. These theories are all concerned with explaining information processing and providing important frameworks from which to study this phenomenon. Moreover, an examination of these theories may allow researchers to gain a greater understanding of how health messages may be processed in entertainment-education media, and in the context of daytime talk shows. (Moyer-Gusé, 2008).

The entertainment overcoming-resistance model (EORM) predicts what unique features of entertainment narratives lead to high involvement based on the narrative and characters. This involvement subdues audience counter-arguing and can lead to a change in attitude (Moyer-Gusé, 2007). The overall theoretical framework of the EORM predicts that individuals lower their resistance to persuasion because of the entertaining quality found in narratives (Moyer-Gusé & Nabi, 2011). SCT, which also works with EORM, posits that vicarious learning can occur through modeling or imitation of the situations and environments seen in the media. It also forecasts the conditions where people will model the behavior through observational learning (Bandura, 2002). SCT identifies four processes that determine learning. These cognitive processes are retention, attention, production, and motivation. While all important factors, motivation is a key part of the theory (Bandura, 2004). It explains why people do not engage in every behavior that they see because the individual has to feel motivated in order to behave in that manner. Motivation is a variable that is determined by self-efficacy and outcome expectancies.

Outcome expectancies are the individual's beliefs about the consequences, either positive or negative, that will occur upon enacting the behavior (Bandura, 2004). Studies of cancer-

related behaviors have shown that through observation, an individual's self-efficacy is boosted when he or she witnesses someone successfully undertaking the behavior. This is because the individual knows what to expect from a procedure and therefore feels more comfortable completing a frightening medical procedure such as a cancer screening. Due to the narrative's illustration of a person who successfully performed the task, an individual may be better able to mentally prepare for such a procedure, and feel more positive about the outcomes (Kreuter et al., 2007).

Self-efficacy, as mentioned earlier, refers to the individual's self-confidence in his or her ability to carry out the behavior. This also impacts an individual's motivation to model the behavior of another. Simply watching another similar person successfully complete a difficult task, can positively influence one's own confidence in completing the task (Moyer-Gusé, 2008). In the talk show format used in this study, this concept is shown through the host's experience with on-air breast cancer screening. She goes through the entire process, which plays like a narrative, from signing the paperwork to successfully emerging from the exam on live-television. Since SCT posits that entertainment-education messages are likely to influence the audience's outcome expectancies and self-efficacy when the character is successful, it is hard to make a distinction between that concept and the role of character identification and perceived character similarity. This suggests that these processes work in conjunction (Bandura, 2002). Regardless, SCT is very useful in the health context, particularly for influencing behaviors such as cancer screening. Some people are resistant to such examinations because of the doubts about their own self-efficacy in completing the procedure and their doubts about the outcome of it. A captivating narrative or personal story depicting the benefits that early detection can have on saving a life can be more convincing to a person than merely providing that person with statistical

information (Kreuter, 2007). It increases the viewers' confidence that they too can do the same thing and that the procedure is not frightening. Because of the content presented in daytime talk shows, this phenomenon has the potential for occurring in that context in a similar way to the traditional narratives of entertainment-education. Thus the following hypothesis is proposed:

H1: Participants viewing an entertainment-education narrative message presented on a daytime talk show will have greater self-efficacy concerning mammograms than participants viewing a more traditional informational message.

H2: Participants viewing an entertainment-education narrative message presented on a daytime talk show will have a more positive attitude about getting a mammogram than participants viewing a more traditional informational message.

Resistance

To fully understand how persuasion works in entertainment-education, the concept of resistance needs to be examined. Resistance is defined as a reaction against performing the behavior because the individual feels some pressure to do so (Knowles & Linn, 2004). In a health context, resistance can be denying the effectiveness of the behavior or refusing to take preventative action such as a cancer screening (Kreuter, et al., 2007). Public service announcements can bring about such resistance. These traditional forms of health communication have an obvious persuasive intent. When people feel pressured to do something they get more defensive toward the message and convince themselves not to listen to it, even when presented with negative consequences of doing so (Dutta, 2007). The explicitness of the persuasive attempt is the main cause of feeling pressured. Explicitness is defined as making the persuasion obvious to viewers. A study from Grandpre, Alvaro, Burgoon, Miller, and Hall (2003), showed participants either explicit or implicit smoking messages. In the explicit

messages, the persuasive attempts were manipulated to be more obvious. The results show that the explicit messages were evaluated lower than the implicit messages which suggested that resistance occurs when obvious persuasive attempts are made.

Entertainment-education can combat this. Parasocial interaction with characters in traditional narratives may reduce resistance because using peers to deliver risk messages of any kind can be an effective strategy due to the fact that peers are thought of as less controlling (Burgoon et al., 2002). This occurs in traditional entertainment-education, but also occurs in talk shows and in other contexts. One study found that PSI occurred in a radio host context so it is only natural to believe it would be present in talk shows. Another study in health communication showed that celebrity news stories that were related to cancer showed an increase in the people seeking out examinations (Kreuter et al., 2007).

The extended elaboration likelihood model on the other hand, highlights the effects of reducing viewer counter-arguing and it also looks at the ability of entertainment media to sway attitudes and behavior (Slater & Rouner, 2002). Entertainment formats have the ability to do this by reducing message scrutiny, another type of resistance. The format and structure of messages contained within entertainment programming allows for a reduction of counter-arguing by the viewer. Counter-arguing is a form of scrutiny defined as the production of thoughts that disagree or go against the persuasive argument (Moyer-Gusé, 2007). Audiences are less likely to counter-argue due to their engagement with the narrative which puts them in a less critical mental state, more immersed in the plot, leaving them more open to ideas. Arguing with the messages presented in this narrative would interrupt the viewer's sense of being immersed in the story. This is all dependent on both the quality of the story, and the subtlety of the persuasive content (Slater & Rouner, 2002). There are two key components of that allow for the reduction of

counter-arguing. These include transportation and identification with characters. Transportation relates to the previously discussed concept of how being absorbed into a story can reduce resistance and leads to the feeling of being within the storyline (Green, Brock, & Kaufman, 2004). Because a viewer is lost in the story, they are distracted. Transportation also reduces scrutiny because the viewer is not willing to interrupt the narrative to counter-argue messages within the story. There is empirical evidence that backs the notion that transportation can decrease counter-arguing and increase adoption of the messages, even controlling for attitudes weeks later (Green & Brock, 2000).

The other component of E-ELM is identification with characters. Identification is a way in which a person views another person as similar to them or as a person they might have a social relationship with (Slater & Rouner, 2002). Identification denotes an additional way that the audience can become absorbed in the story and like transportation, it reduces counter-arguing and increases message acceptance (Moyer-Gusé, 2007). Unfortunately, this description combines many similar constructs including the previously discussed concepts of narrative identification and parasocial interaction. In the same way as those constructs, identification in the E-ELM allows for a loss of the self while the viewer is identifying with the character and the storyline, also reducing counter-arguing (Cohen, 2001). This heavily focuses on the way in which the viewer takes on the character's perspective and world. This could also happen in talk shows. When audience members are a fan of a talk show they often identify with the hosts of that show. Also, when short clips are shown to demonstrate a story or message, the clips are often compelling and promote identification in a similar way to traditional entertainment-education media. If this proposition was supported, it would lead to the suggestion that talk show content

has some of the key influential features of traditional education-entertainment media that leads to persuasion and behavior changes. Therefore, the following hypothesis is proposed:

H3: Participants viewing an entertainment-education narrative message presented on a daytime talk show will report more narrative engagement when viewing a pro-mammogram message than participants viewing a more traditional informational message.

H4: Participants viewing an entertainment-education narrative message presented on a daytime talk show will report feeling more transported when viewing a pro-mammogram message than participants viewing a more traditional informational message.

The extent to which the viewer needs to be immersed to effectively reduce counter-arguing is still unknown. In sum, SCT and the E-ELM are both important models that aid in making sense of how entertainment-education media overcome audience resistance to persuasion. While somewhat similar constructs, SCT emphasizes motivation and modeling while the E-ELM shows how counter-arguing is reduced, which are both important pieces in understanding viewer persuasion.

Methods

Overview

This study seeks to determine whether education-entertainment messages have the same effects in a nonfictional talk show format as they traditionally do in a fictional narrative format. To test the various hypotheses which propose that persuasive effects of entertainment-education can occur in a non-fictional format, a quasi-experimental design was proposed.

Participants and Procedures

Participants were female students ($n = 82$) since breast cancer is a predominantly female disease. They were enrolled in two large lecture classes at a large mid-Atlantic university. Participation was voluntary and respondents were chosen based on convenience sampling. The majority of the sample was Caucasian (87.8%) and they ranged in age from 18 to 42 years old ($M = 21$, $SD = 2.68$).

Upon agreeing to participate in the survey, participants were randomly exposed via Qualtrics to one of the two pro-mammography messages. The first message was a segment from a daytime talk show that chronicles the experience of a TV reporter who, in the course of filming a segment on mammograms, found out that she herself had breast cancer. The segment takes a much more personal tone than a standard PSA since the reporter has a relationship with the hosts of the show she is appearing on and the segment is not scripted. The second group, which is the public service announcement group, was also exposed to a pro-mammography message. The message that this group saw was a more traditional message that appears like a public service announcement, educating women on the importance of mammograms and early detection due to fast moving cancers. It relies on a script and actors to convey the importance of it. For the sake of control, the length of this message was similar to the first message.

Measures and Materials

A survey was constructed using Qualtrics to measure self-efficacy related to mammograms, attitudes toward mammograms, and levels of narrative engagement and processing in relation to which message they were exposed to. After viewing the video within Qualtrics, participants were asked to respond to questions. Each participant received an identical survey to record her responses to the stimuli.

Self-Efficacy

Self-Efficacy was measured using the 10-item Champion, Skinner, and Menon (2005) Mammography Self-Efficacy scale (see Appendix A). This measure predicts and explains a woman's decision to get a mammogram (Champion et al., 2005). Participants responded on a 7-point Likert scale based on their level of agreement with each statement. The Mammography Self-Efficacy measure has been used to predict mammography self-efficacy in US urban minority populations, and in countries outside of the USA. It has also been able to predict message effectiveness (Jerome-D'Emilia & Suplee, 2014; Jensen, King, Carcioppolo, & Davis, 2012; Othman, Kiviniemi, Wu, & Lally, 2012). Additionally, the measure has produced Cronbach's alphas ranging from .81 - .94. In this study, a Chronbach's alpha of .91 ($M = 54.34$, $SD = 11.37$) was attained.

Attitudes

Attitudes toward getting a mammogram and conducting a self-exam were measured using the 9-item Shaw, Vivian, Orzech, Torres, and Armin (2011) Breast Cancer Screening Attitudes scale (see Appendix B). Previous research has found that the Breast Cancer Screening Attitudes measure has been related to health literacy, education and promoting health behaviors (Armin, Torres, Vivian, Vergara, & Shaw, 2013; Marquez, Elder, Arrendondo, Madanat, Ji, & Ayala,

2014). Participants responded to a 7-point Likert scale based on their level of agreement with each statement. Additionally, the measure has produced Cronbach's alphas of .70 as a measure of internal reliability. This study produced a rather low Cronbach's alpha of .49 ($M = 15.96$, $SD = 3.27$).

Transportation

Transportation was measured using the Green and Brock (2000) Transportation scale. Participants responded to 11-items on a 7-point Likert scale based on their level of agreement with each statement (see Appendix C). Previous research has found that the transportation measure has been helpful in understanding the impact of breast cancer survivor stories, information delivery in media, and changing beliefs and behavior (Kaufman & Libby, 2012; McQueen, Kreuter, Kalesan, & Alcaraz, 2011; Tsay-Vogel & Oliver, 2014). Additionally, the measure has produced Cronbach's alphas in the .70-.82 range as a measure of internal reliability. In this study a Cronbach's alpha of .71 ($M = 48.61$, $SD = 8.37$) was found.

Narrative Engagement

Narrative engagement was measured using the Green and Brock (2000) Narrative Engagement scale (see Appendix D). It was developed to predict attitudes and enjoyment of narratives. Participants responded to 6-items on a 7-point Likert scale based on their level of agreement with each statement. Previous research has found that the narrative engagement measure has been useful in understanding health beliefs, influence of characters, and narrative persuasion (Appel & Mara, 2013; Graaf, 2014; Lane, Neville Miller, Brown & Vilar, 2013). Additionally, the measure has produced Cronbach's alphas in the .85 - .87 range as a measure of internal reliability. This study produced a Cronbach's alpha of .87 ($M = 27.67$, $SD = 7.01$).

Results

Hypothesis one predicted that participants who viewed an entertainment-education narrative message presented on a daytime talk show will have greater self-efficacy concerning mammograms than participants who viewed a more traditional informational message. Results of an independent samples *t*-test did not support this hypothesis ($t(78) = -.14, p=.89$). A closer look at the means reveals that while participants who viewed the narrative news story ($M= 5.45, SD= 1.26$) did have slightly higher mammography self-efficacy scores than those who viewed the PSA ($M=5.42, SD= 1.04$), this difference was not statistically significant.

Hypothesis two proposed that participants who viewed an entertainment-education narrative message presented on a daytime talk show will have a more positive attitude about getting a mammogram than participants who viewed a more traditional informational message. Results of an independent samples *t*-test did not support this hypothesis ($t(78) = -.44, p= .66$). The mean of those who watched the narrative message ($M= 4.54, SD= 1.16$) was marginally higher than those who viewed the PSA ($M=4.44, SD= .83$), but this difference was not statistically significant.

Hypothesis three posited that participants who viewed an entertainment-education narrative message presented on a daytime talk show will report more narrative engagement when viewing a pro-mammogram message than participants who viewed a more traditional informational message. Results of an independent samples *t*-test did support this hypothesis ($t(78) = -2.48, p=.02$). The mean of those who viewed the narrative message ($M= 4.96, SD=1.21$) indicated that those participants had significantly higher narrative engagement than those who viewed the PSA ($M=4.33, SD=1.06$).

Hypothesis four predicted that participants who viewed an entertainment-education narrative message presented on a daytime talk show will report feeling more transported when viewing a pro-mammogram message than participants who viewed a more traditional informational message. Results of an independent t -test supported this hypothesis ($t(78) = -2.46$, $p = .02$). Those participants who viewed the news story ($M = 4.64$, $SD = .80$) showed significantly higher levels of transportation than those who viewed the PSA ($M = 4.24$, $SD = .68$).

Three post hoc analyses were conducted in order to see if participants' behavior in seeking more information concerning getting a mammogram was related to which video they were exposed to, their level of engagement, or their level of transportation. As previously discussed, all participants were provided with a hyperlink that they could click on in order to receive more information regarding registering for a mammogram. The first of these analyses investigated whether or not the video a participant was exposed to was associated with whether or not they followed the hyperlink. Results of a Chi-Square analysis failed to provide evidence of any association between the video a participant was exposed to and if they followed the hyperlink ($\chi^2(1, N=82) = .04$, $p = .84$). The second post hoc analysis looked to see if those participants who followed the hyperlink reported being significantly more narratively engaged than those who did not follow the hyperlink. Results of an independent samples t -test did reveal significant differences in narrative engagement ($t(79) = 2.00$, $p = .04$) between those who did ($M = 4.93$, $SD = .95$) and those who didn't follow the hyperlink ($M = 4.41$, $SD = 1.25$). Finally, a third post hoc analysis looked to see if those participants who followed the hyperlink reported being significantly more transported than those who did not follow the hyperlink. Results of an independent samples t -test did reveal significant differences in transportation ($t(78) = 3.48$, $p =$

.001) between those who did ($M = 4.76$, $SD = .63$) and those who didn't follow the hyperlink ($M = 4.19$, $SD = .76$).

Discussion

The main purpose of this investigation was to see if a narrative news story could be more persuasive in influencing affective responses toward breast cancer screening than a PSA. The ability of entertainment-education narratives to influence audiences' attitudes and behaviors regarding prosocial issues has produced a great deal of research and investigation (Collins et al., 2003; Moyer-Gusé, 2008; Singhal et al., 2000). The fictional narrative format has been identified as one of the main explanations as to why E-E programs are so effective at changing these attitudes and behaviors; however, many types of narratives have gone untested. Stories found in morning news programming or daytime talk shows, contain similar important qualities as fictional programming that have been shown to lead to viewer persuasion. Specifically, this study sought to look at the effectiveness of entertainment-education messages in the context of cancer communication.

E-E was thought to be effective in this context because it makes information processing easier, provides social connections, and addresses emotional issues regarding cancer treatment and prevention (Kreuter et al., 2007). Narratives such as those found in E-E programming combat doubts by providing a compelling story that engages an audience and changes their beliefs and behaviors (Slater & Rouner, 2002).

Based on what is known about E-E narratives, it was hypothesized that narratives found in news stories would lead to higher levels of self-efficacy and more positive attitudes toward breast cancer screening. Additionally, it was hypothesized that the E-E narrative would produce higher levels of narrative engagement and transportation compared to those who viewed a public

service announcement. The results observed in the current investigation lend mixed support for the hypotheses forwarded. Hypothesis one and two were not supported, as participants' self-efficacy and attitudes toward breast cancer screening were not significantly different as a result of which media clip was viewed. Hypothesis three and four however, were supported. Those who viewed the narrative news story did in fact experience greater feelings of transportation and narrative engagement than those who viewed the PSA. This finding is in-line with previous literature on the constructs of narrative persuasion and the effects on viewers (Green & Brock, 2000; Moyer-Gusé, 2008; Singhal et al, 2000).

Overall, this pattern of results makes sense given the design of the experimental manipulation. Participants' self-efficacy and attitudes toward getting a mammogram were, in fact, not manipulated. Neither of the experimental messages attempted to impact participant's self-efficacy. As a result, it explains why no differences were found in the self-efficacy of the groups. Similarly, with regard to the lack of observed differences in the two groups' attitudes toward getting a mammogram, each video advocated in its own way for the importance of breast cancer screening. Given that both messages supported getting a mammogram, the fact that the analyses failed to reveal a difference in participants' attitudes toward mammograms is not surprising.

However, what this experimental design did manipulate was whether the participants viewed the E-E message or the PSA. The narrative news story served as the E-E message, and this message was intended to influence narrative engagement and feelings of transportation like traditional E-E narratives. This aspect of the study did pan out, and those who viewed the E-E message had significantly higher feelings of transportation and narrative engagement than those

who viewed the public service announcement. Looking at the study as a whole and the design of the manipulation, the findings do make sense.

Still, these mixed findings raised questions about the role of transportation and narrative engagement from the E-E message. Though it was not originally hypothesized, participants were provided a link that they could click on if they were interested in obtaining more information about breast cancer screenings. Three post hoc analyses were conducted. The result of the first of these analyses was not significant from those who saw the E-E message versus the PSA. However, the last two analyses did reveal that even though there was no difference in clicking the link based on which video was viewed, there was a difference in clicking the link based on participants' levels of narrative engagement and transportation. This leads to the possibility that the relationship between the videos and clicking behavior could be mediated by engagement and/or transportation. Since transportation and narrative engagement were significantly different based on which video participants viewed, as well as whether or not they clicked the link, it is possible that the narrative news story did have some impact on participants but that this impact was mediated. Perhaps, with a bigger sample size the relationship between transportation, narrative engagement, participants' attitudes, self-efficacy beliefs, and information seeking behavior would be clearer.

Limitations

It is important to note, as with any study, that certain limitations exist in the present study. One of the main limitations is that the measure used to examine mammography attitudes produced a low reliability with a Cronbach's alpha of .49. Since this measure was crucial to the hypothesis one, it is possible that different results could have been attained with a more reliable measure of the participants' attitudes toward mammography.

Another limitation that potentially affected the outcome of this study was the age of the participants. This is important to point out because the issue of breast cancer is generally not a concern of college aged females. Though these females are at the age to begin the conversation with their doctors, they may not have experienced an attitude change due to the perceived irrelevance of the disease.

Finally, the amount of time that participants spent taking the survey needed to be taken into account as a potential mediating variable. The video clips were approximately 2 minutes long, so participants that spent a total of 3 to 5 minutes on the entire process of filling out the survey and watching the video, could have compromised the accuracy of their data or proceeded filling out the survey without viewing the whole video clip. To prevent this, future studies could be conducted in-person instead of online to ensure participants spend adequate time completing the task. Also, it is important to mention that the small sample size used in this study could have contributed to the insignificant findings in hypothesis one and two.

Future Direction

In the future, it may be advantageous to analyze and model the relationship between viewing the narrative news story, its impact on the constructs of narrative engagement, and its outcomes on attitudes, beliefs, and behaviors. In order to do this a larger sample size is needed. As it stands now, analyses revealed a link between watching the narrative news story and higher levels of both transportation and narrative engagement. Post hoc analyses revealed a link between watching the narrative news story and the behavioral outcome of seeking more information. If a model were developed to put all of the links together, it would greatly benefit future research by illuminating the persuasive ability of entertainment-education in nonfictional contexts.

On the whole, this study lends some support for the presence of certain aspects of narrative engagement in non-fictional programming like talk shows or morning news shows. Though no support was found for the improvement of attitudes and self-efficacy beliefs through viewing such programming, it is possible that this link could be discovered with more data and a larger sample size. Even so, more research is essential to determine whether the present findings generalize to other non-fictional narrative programming. Future research could also replicate this study focusing on topics other than breast cancer. It is understood from previous research that the topic itself has an impact on attitudes and self-efficacy beliefs because some topics bring about more resistance than others (Moyer Gusé & Nabi, 2010). Perhaps studying this in the context of other widespread health issues would bring about different results. In conclusion, this study has taken a preliminary step toward understanding the persuasive value of E-E effects in non-fictional contexts, and it sheds some light on aspects of cancer communication.

Appendix A

Mammography Self-Efficacy Scale

Champion, V., Skinner, C., & Menon, U. (2005). Development of a self-efficacy scale for mammography. *Research in Nursing & Health*, 28, 329-336. doi: 10.1002/nur.20088.

(1= strongly disagree; 7=strongly agree)

1. I can arrange transportation to get a mammogram
2. I can arrange other things in my life to have a mammogram
3. I can talk to people at the mammogram center about my concerns.
4. I can get a mammogram even if I am worried
5. I can get a mammogram even if I don't know what to expect.
6. I can find a way to pay for a mammogram
7. I can make an appointment for a mammogram
8. I know for sure I can get a mammogram if I really want to
9. I know how to go about getting a mammogram
10. I can find a place to have a mammogram

Appendix B

Attitudes Scale

Shaw, J., Vivian, J., Orzech, K., Torres, C., & Armin, J. (2011). Consistency in attitudes across cancer screenings in medically underserved minority populations. *Journal of Cancer Education*, 27, 165-171. doi: 10.1007/s13187-011-0285-0.

(Attitudes towards cancer screenings were measured using items adapted from breast cancer and colorectal cancer screening scales)

(1= strongly disagree; 7=strongly agree)

1. Having the mammogram will reduce my chances of dying of breast cancer
2. I don't worry much about breast cancer
3. The mammogram will be painful
4. The mammogram will take too long
5. The mammogram will be too expensive
6. A self-breast exam will help me find a lump
7. A mammogram will help me find a lump
8. If a mammogram is performed, a self-exam is unnecessary
9. If a self-exam is performed, a mammogram is unnecessary

Appendix C

Transportation Scale

Green, M., & Brock, T. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology*, 79, 701-721. doi: 10.1037/0022-3514.79.5.701.

(1= strongly disagree; 7=strongly agree)

1. While watching the clip I could easily picture the events taking place
2. While watching the clip, activity going on in the room around me was on my mind (R)
3. I could picture myself in the scene of the events depicted in the clip
4. I was mentally involved while watching it
5. After finishing the clip, I found it easy to put out of my mind (R)
6. I wanted to learn how the clip ended
7. The clip affected me emotionally
8. I found myself thinking of ways the events in the clip could have turned out differently
9. I found my mind wandering while watching the clip (R)
10. The events of the clip are relevant to my everyday life
11. The events in the episode have changed my life

Appendix D

Narrative Engagement Scale

Busselle, R., & Bilandzic, H. (2009). Measuring narrative engagement. *Media Psychology, 12*, 312-347. doi: 10.1080/15213260903287259.

(1= strongly disagree; 7=strongly agree)

1. I was mentally involved in the story while viewing
2. I was never really pulled into the story (R)
3. While viewing I was completely immersed in the story
4. Overall the viewing experience was intense for me
5. I wanted to learn how the story ended
6. While viewing I wanted to know how the events would unfold

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